

WARMING RAILWAY CARRIAGES.

It appears that the Great Northern Railway Company have commenced to warm their carriages on the "through" trains by the introduction of "foot-warmers." This is a start in the right direction; and, what is more, it is truly the beginning of a system which must become general on every railway throughout the three kingdoms. There is no practical difficulty to be overcome in making a railway carriage warm and perfectly comfortable; so that the most delicate person may travel from "Land's-end to John o' Groats" as snugly and cosily as if he had his feet on the hearth-rug of his drawing-room, with the curtains drawn and a warm fire in the grate. It is now upwards of six years since I detailed a plan for the accomplishment of this, and brought it before the public through the columns of the *Liverpool Journal*. The article was extracted by more than one metropolitan journal, and was commented on pretty generally, but nothing came of it. Railway directors, in the days of their prosperity, were not prone to patronise the schemes of an outsider, especially where there would be a little extra trouble to the officials, much comfort to the passengers, but probably no more pay, the full toll being already exacted. A little wholesome competition will, however, accomplish wonders; and we shall not be obliged to pay the terrible penalty of being half-frozen through a long journey, when it is proved to demonstration that at a very slight extra cost to the companies, we may be carried swiftly, safely, and warmly.

ROBERT RAWLINSON.

P.S.—The warming-feat (qv. *feet*) has long been accomplished in the swift boats on English and Scotch canals, as also on American and continental railways.

LECTURE ON MACHINES AND TOOLS, FOR WORKING IN METAL, WOOD, AND OTHER MATERIALS.

In continuation of the course of lectures on the results of the Great Exhibition at the Society of Arts, Professor Willis, on the 29th ult., delivered a lecture "On Machines and Tools." He observed that whilst the departments of raw material and products in the Exhibition were copiously illustrated, and generally understood and appreciated, that of actual processes was not at all well represented, and still less were the objects displayed, understood, or admired by the myriads who thronged the building. Much distrust at present existed between the scientific man and the practical mechanic; and for this each was to blame. Self-taught and ingenious men were too apt to despise the advantages of scientific knowledge, and to hold themselves above all teaching; and with a degree of presumption which brought its own punishment, they attempted the construction of complicated machines, for the conception of which they might possess a natural gift; whereas, without scientific knowledge they might fail in combining the different motions required, or produce ultimately something which had been done long before. Scientific men, on the other hand, too often forgot the proper mode of addressing their advice and instruction to mechanics; and by a want of judgment in the selection of their illustrations, excited a prejudice which it was difficult to counteract.

There were three principal modes of working raw materials into shape; by cutting off their superfluous masses, in chips or large pieces (and to this mode time would compel him to limit his observations); by moulding or kneading the ductile; and by casting the fusible materials. The turning-lathe was one of the most ancient and simple machines applied to the former purpose. The lecturer described its operation in scientific terms, and proceeded to notice the history of machinery, in reference to some of the more important inventions. The watchmakers were among the earliest inventors of shaping-machines, in proof of which he referred to the tools they used for forming the toothed wheels of clocks and watches, and to the fusee-engine, an instrument of great ingenuity. He stated, that the first complete set of shaping-machines for the manufacture of

goods in metal, were those introduced for the construction of Bramah's locks. He noticed also the famous block-machinery at Portsmouth; and in reference to the adoption of cast-iron instead of brass for astronomical instruments, he argued that the makers of such instruments must necessarily understand the use of various machines for boring, slotting, &c. which they had hitherto been unacquainted with. This general knowledge was of the greatest consequence.

The Professor proceeded, by the aid of certain simple models, to illustrate the mechanical process for obtaining a plane surface in any material, particularly by the circular saw, and the planing-machine. In the latter he illustrated ingeniously the different methods of regulating the motion which brought the work in contact with the tool, a matter of the greatest importance to the result. Some of these applications were shown in the Exhibition by Mr. Whitworth. The shaping-machine was also described, and its action shown, as also the slotting-machine, Brunel's morticing-machine, and other modern inventions.

WORDS TO WORKMEN.*

No sensible person of the working (or any other) classes will envy the higher ranks the enjoyment of luxuries—champagne and the like; things which the best men of all ages have been without, many by even premeditation, and the awe of the deleterious effects of stimulants, &c. Neither can we begrudge the higher ranks their exemption from toil and labour—an assumption only gratuitous and exceptional, because who ever eats his bread more in the sweat of his brow than the wealthy or noble sportsman?—the traveller for science or art sake in distant climes?—the over-worked and sagging (*erschöpft*) statesman and financier? Or shall we envy them their spacious dwellings, knowing that Goethe (though not poor) mostly lived in one room, in which there was no sofa, and reposed in a small iron-framed bedstead? Or shall we envy them the elakeness and tidiness of their occupation, which they often perform without "wetting their feet?" This preference also will, on closer examination, be found illusory, considering, for instance, the dire occupation of medical men, work so ominous, both physically and morally, that we will not dwell on it any further.

What working men may really envy the higher ranks for is, then, the quiet and orderly way in which they (mostly!) perform their work; the quiet and comfort, in fine, they enjoy after that work is done. Both, we say, are at the command of the working men of the present time, if they choose to think, to reflect, and to act judiciously and prudently—essential attributes, after all, of humanity; and any one, in fact, who does not possess them, places himself forcibly out of that pale he still wills or means to reach. First, then, every person ought really to possess that qualification (profession) he eventually professes to be capable of. Do you wish to obtain the reward (wages) of skilled men? Be such, and then the world will belong to the courageous (*Die Welt gehört dem Muthigen*). We do not speak of that dogged courage of the battle-field, but that energy of life and exertion to which, after all, we repeat, the world belongs. Will you possess the external rewards of the higher ranks of society; take them at once,—by acquiring their internal stamina and impulses. Act judiciously, prudently, and with skill, and you will surely be raised, because it is a curious observation, that men (mostly) soon cease to do that work they perfectly and eminently are able to perform, and rise to that which is above it!! Of course, this has its limits, the centripetal force controls the expansive one, and wisely ordained it is.

But let us reflect on the quiet and comfort the higher classes enjoy in their leisure hours at home; and so can the thinking human-like (*menschliche*) workmen. It is not the range of rooms we may occupy which makes man happy, but the comfort of that one or two he

actually uses and dwells in. That regularity, tidiness, systematicity which a sensible man displays in his work, he mostly transfers and conveys home. Clever men of all ranks have done wonders also in this respect. When the chemist Scheele had become famous all over the world, and visitors were anxious to see his laboratory, where he had made such great discoveries, he led them to a few shelves and cupboards of his room, a few furnaces placed outside the windows, when and wherewith all these grand things had been accomplished—all orderly, all tending and arranged for one purpose and end. The dwellings of the industrious classes have, of late, become matter of States' attention in most parts of Europe. If working men will have respect for their places of abode, they will not hire any human-unworthy (*menschlich-unwürdige*) habitation. Surely architects and landlords will soon become aware and alive to that; and so also may be the internal arrangement of their dwellings,—the luxury of order, cleanliness, tidiness, &c. To conclude, the man who will prosper in life, must make himself capable of being prosperous.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

The Petersburg and Warsaw Railroad.—The Russian Government have decided on completing these huge works even in a shorter time than was originally proposed. Hence, therefore, the line has been divided into eight sections, which will be separately under an especial direction, for thus expediting the works as much as possible. In imitation of the Romans, the earth-works are to be executed by the soldiery of two separate corps *d'armée*, by which a great saving of wages will be achieved. A space of nearly three years is now assigned for the completion of this huge European line. That between Warsaw and Moscow is also to be put into immediate execution, also assisted by the labours of the soldiery. It is a question, however, unresolved yet, whether the intense cold of these regions (at times 25 degrees Réaumur below the freezing point) may not affect, by too great a contraction of the iron in the machinery, and even the rails, the regular traffic during the winter months.

Glass Palace on the Continent.—The committee of management for the Silesian Industrial Exhibition, to be held this year at Breslau, have decided that a building similar to the London Glass Palace should be erected for that purpose. It will occupy a superficial area of 25,000 square feet, but be covered with slate, on account of the northern latitude, and as it will be probably kept for other ulterior purposes. The contractors will erect the building quite at their own risk, but receive 12,500 thalers for its present use, which will have to be obtained by the admission fees.

Brussels Academy of Fine Arts.—M. de Nievekerke has published a new set of regulations for the fine art exhibition, to be held this year in the Belgian capital. No one person can exhibit more than three articles, these being considered quite sufficient for the ambition or gain of any one artist. The committee on the adjudication of prizes to consist henceforth of one-half elected by the artists, and the other half by the academy. No member of the academy nor any person decorated can take part in these exhibitions, destined to encourage and raise nascent talent. An additional prize of 4,000 francs has been added by the minister of public instruction. A paper by Mr. W. P. Griffith, "On the Proportions employed by the Romans in forming the Temple of Vesta, at Tivoli," has been read before the class for the Fine Arts in the Royal Academy of Belgium. It was referred to M. C. Bock, M. Baron, and M. Roelandt, who have drawn up lengthy reports upon it.

LECTURE BY MR. MACREADY.—A lecture on poetry was given on Wednesday in week before last, by Mr. W. C. Macready, at Sherborne-house, to the members of the Sherborne Literary Institution, of which he is president.

* Translated from the German,—"A New Year's Gift to the Working Men of Europe."